

Pilot Induced Oscillation Suppression Under Off-Nominal Conditions Using L1 Adaptive Control, Phase I

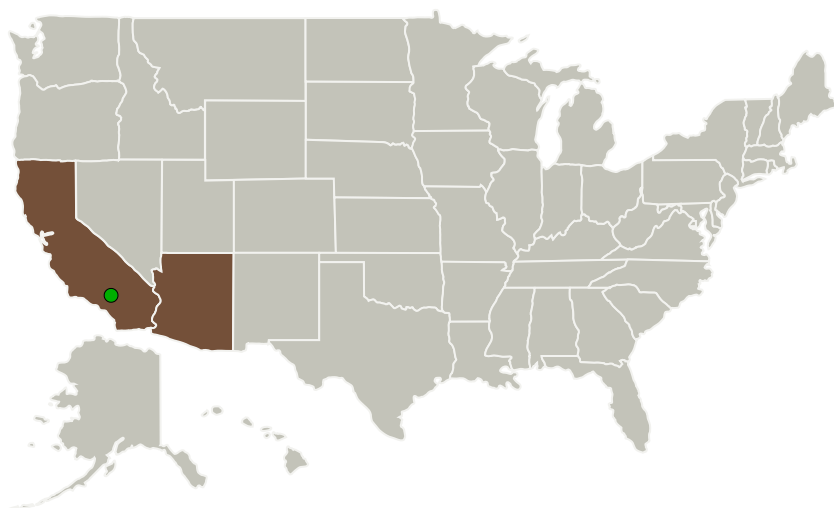
Completed Technology Project (2011 - 2011)



Project Introduction

ZONA Technology, Inc. proposes an R&D effort to develop an adaptive flight control system which can provide near-nominal performance for the aircraft under off-nominal conditions, consequently reduce pilot-vehicle interactions. Furthermore, this adaptive control system is combined with a monitoring system to detect possible Pilot-Induced Oscillation (PIO) while both pilot and controller are adaptively working, in order to avoid PIO and enhance aviation safety. The proposed comprehensive combined control technique aims to reduce the interaction between the adaptive flight system and the pilot control action to a minimal level, when the aircraft experiences system failures, damage and/or upset conditions.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ZONA Technology, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Scottsdale, Arizona
● Armstrong Flight Research Center(AFRC)	Supporting Organization	NASA Center	Edwards, California



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Primary U.S. Work Locations

Arizona

California

Project Transitions

 **February 2011:** Project Start

 **September 2011:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138404>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

ZONA Technology, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

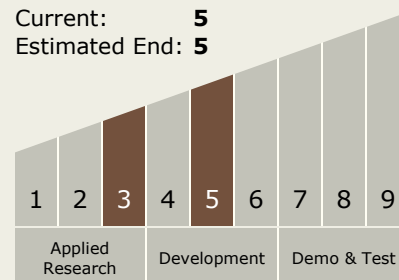
Carlos Torrez

Principal Investigator:

Jiang Wang

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX10 Autonomous Systems
 - └ TX10.4 Engineering and Integrity
 - └ TX10.4.1 Verification and Validation of Autonomous Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System